

TABLE 1

First Mat	Second Mat	Test I	Test II	Test III	Test IV
1	A	-31	-21	-16	-14
2	A	-29	-24	-7	+9
3	A	-46	-29	+6	+16
4	A	-23	-4	-21	+28
5	A	-16	+2	-14	-30
6	A	-35	+2	-16	+11
1	B	-9	-17	+6	-9
2	B	+9	-28	+11	+15
3	B	+2	-16	-2	0
4	B	+17	-3	-22	+32
5	B	+16	-3	+14	+32
6	B	+5	+17	-1	+15

It will be understood that while the invention has been described in conjunction with specific embodiments thereof, the foregoing description and examples are intended to illustrate, but not limit the scope of the invention. Other aspects advantages and modifications will be apparent to those skilled in the art to which the invention pertains, and these aspects and modifications are within the scope of the invention, which is limited only by the appended claims. Unless otherwise specifically indicated, all percentages are by weight. Throughout the specification and in the claims the term "about" is intended to encompass + or -5%.

The invention claimed is:

1. A gypsum wallboard comprising:

a gypsum core having a planar first major face and a planar second major face;

a first coated non-woven mat facing material comprising glass fiber and an adhesive polymer binder, the first coated non-woven mat facing material adhered on a non-coated side to the planar first major face of the gypsum core, wherein the first coated non-woven mat has a first basis weight before application of the coating;

a second non-woven mat facing material comprising glass fiber wherein the second non-woven mat facing material is optionally coated with an adhesive polymer binder, the second coated non-woven mat facing material adhered on a non-coated side to the planar second major face of the gypsum core, wherein the second non-woven mat has a second basis weight before application of the optional coating, and wherein the second basis weight is greater than the first basis weight.

2. The gypsum wallboard of claim 1, wherein the second basis weight is at least about 0.15 pounds per 100 square feet greater than the first basis weight.

3. The gypsum wallboard of claim 1, wherein the second basis weight is at least about 0.5 pounds per 100 square feet greater than the first basis weight.

4. The gypsum wallboard of claim 1, wherein the adhesive polymer binder of one or both of the first and second coated non-woven mat facing material comprises styrene-butadiene rubber, styrene-butadiene-styrene, ethylene-vinyl chloride, polyvinylidene chloride, polyvinyl alcohol, ethylene-vinyl acetate, polyvinyl acetate, a homopolymer or polymer com-

prising (meth)acrylic acid units, a homopolymer or copolymer comprising (meth)acrylic acid ester units, or a combination thereof.

5. The gypsum wallboard of claim 1, wherein the adhesive polymer binder of one or both of the first and second coated non-woven mat facing material comprises styrene-butadiene rubber, styrene-butadiene-styrene, ethylene-vinyl chloride, polyvinylidene chloride, polyvinyl alcohol, ethylene-vinyl acetate, polyvinyl acetate, or a combination thereof.

6. The gypsum wallboard of claim 1, wherein the adhesive polymer binder of one or both of the first and second coated non-woven mat facing material is the same.

7. The gypsum wallboard of claim 1, wherein the adhesive polymer binder of one or both of the first and second coated non-woven mat facing material comprises an acrylic-type binder, wherein the acrylic-type binder is a homopolymer or copolymer comprising (meth)acrylic acid units, a homopolymer or copolymer comprising (meth)acrylic acid ester units, or a combination thereof.

8. The gypsum wallboard of claim 7, wherein the adhesive polymer binder of the first and second coated non-woven mat facing material is the same.

9. The gypsum wallboard of claim 7, wherein the adhesive polymer binder of the first and second coated non-woven mat facing material is the same, and each has a Tg in use of about 20° C. to about 115° C.

10. The gypsum wallboard of claim 7, wherein the adhesive polymer binder of one or both of the first and second coated non-woven mat facing material comprises a homopolymer or polymer comprising units derived from (meth)acrylic acid, 2-hydroxyethyl(meth)acrylate, 2-hydroxypropyl(meth)acrylate, 2-hydroxybutyl(meth)acrylate, methyl(meth)acrylate, ethyl(meth)acrylate, propyl(meth)acrylate, isopropyl(meth)acrylate, butyl(meth)acrylate, amyl(meth)acrylate, isobutyl(meth)acrylate, t-butyl(meth)acrylate, pentyl(meth)acrylate, isoamyl(meth)acrylate, hexyl(meth)acrylate, heptyl(meth)acrylate, octyl(meth)acrylate, isooctyl(meth)acrylate, 2-ethylhexyl(meth)acrylate, nonyl(meth)acrylate, decyl(meth)acrylate, isodecyl(meth)acrylate, undecyl(meth)acrylate, dodecyl(meth)acrylate, lauryl(meth)acrylate, octadecyl(meth)acrylate, stearyl(meth)acrylate, tetrahydrofurfuryl(meth)acrylate, butoxyethyl(meth)acrylate, ethoxydiethylene glycol(meth)acrylate, benzyl(meth)acrylate, cyclohexyl(meth)acrylate, phenoxyethyl(meth)acrylate, polyethylene glycol mono(meth)acrylate, polypropylene glycol mono(meth)acrylate, methoxyethylene glycol(meth)acrylate, ethoxyethoxyethyl(meth)acrylate, methoxypolyethylene glycol(meth)acrylate, methoxypolypropylene glycol(meth)acrylate, dicyclopentadiene(meth)acrylate, dicyclopentanyl(meth)acrylate, tricyclodecanyl(meth)acrylate, isobornyl(meth)acrylate, bornyl(meth)acrylate, or a combination thereof.

11. The gypsum wallboard of claim 10, wherein the adhesive polymer binder of one or both of the first and second coated non-woven mat facing material is a copolymer further comprising styrene, diacetone(meth)acrylamide, isobutoxymethyl(meth)acrylamide, N-vinylpyrrolidone, N-vinylcaprolactam, N,N-dimethyl(meth)acrylamide, t-octyl(meth)acrylamide, N,N-diethyl(meth)acrylamide, N,N'-dimethylaminopropyl(meth)acrylamide, (meth)acryloylmorpholine, a vinyl ether, a maleic acid ester, a fumaric acid ester, or a combination thereof.

12. The gypsum wallboard of claim 11, wherein the vinyl ether is vinyl ether, lauryl vinyl ether, cetyl vinyl ether, 2-ethylhexyl vinyl ether, or a combination thereof.

13. The gypsum wallboard of claim 7, wherein the adhesive binder of one or both of each of the first and second coated